ABSTRACT

A system and method is provided for using ultrasound data backscattered from vascular tissue to estimate the transfer function of a catheter (including components attached thereto -- e.g., IVUS console, transducer, etc.). Specifically, in accordance with a first embodiment of the present invention, a computing device is electrically connected to a catheter and used to acquire RF backscattered data from a vascular structure (e.g., a blood vessel, etc.). The backscattered ultrasound data is then used, together with an algorithm, to estimate the transfer function. The transfer function can then be used (at least in a preferred embodiment) to calculate response data for the vascular tissue (i.e., the tissue component of the backscattered ultrasound data). In a second embodiment of the present invention, an IVUS console is electrically connected to a catheter and a computing device and is used to acquire RF backscattered data from a vascular structure. The backscattered data is then transmitted to the computing device, where it is used to estimate the catheter's transfer function and to calculate response data for the vascular tissue. The response data and histology data are then used to characterize at least a portion of the vascular tissue (e.g., identify tissue type, etc.).